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The Integrated Ceiling.

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Four factors are necessary for a truly integrated ceiling--(1) light source, (2) acoustical properties, (3) outlets, and (4) complete flexibility. The ceiling plenum is used and can be used more advantageously in the future to satisfy these requirements. Complete flexibility will allow partitions to be moved to form any size or shape space. Present systems allow flexibility only on a rectilinear basis. (JS)

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THE INTEGRATED CEILING

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These remarks will be largely confined to the development of integrated ceilings. The word "flexibility" came into use by school planners about 20 years ago and caused a tremendous revolution in schoolhouse planning. Flexibility extends to partitions which divide large groups into small groups and those into smaller groups, or even into individual setups, and yet move quickly back into very large teaching groups. Not much, however, was done about the flexibility of the ceiling. People moved partitions around but they disturbed the air conditioning, the heating, and the lighting systems in the process. This result gave birth, about seven years ago, to the concept of an integrated ceiling. The outcome was the evolution of many different kinds of ceilings. One was the SCSD grid-integrated ceiling.

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With an integrated ceiling you can have luminous ceilings or all kinds of lighting combinations. But to be a truly integrated ceiling, you need at least four factors. First, it has to contain all the light source for the space that you're utilizing at the time. Second, it must contain acoustical properties, and third, it has to contain outlets for the air conditioning supply and return air, and finally, it has to be completely flexible.

Now, with a completely flexible building having movable partitions within it, the ceiling must be equally adaptable,

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permitting you to move air conditioning, registers and lights. The ceiling, of course, must be accessible so that these changes can be accomplished. Flexibility entails a great deal more than this. Architects believe that in the years ahead it will be necessary to think more and more about built-in change within our school areas to take care of the various utilities that are involved in many of the teaching aids that are now being developed. In doing this, we have used our ceiling plenum -- that is, the space between the closed ceiling itself and the roof area, as a utility space. Now within this space we can run all of our heating, air conditioning, lighting ducts, and other utilities. They can be moved, and they can be reached very easily if laid out in a truly integrated system. It also offers a big utility space that covers the entire structure, where in the future we can run closed circuit television if it's not already there, along with many other innovations to aid teachers that may not even be in existence today. I mentioned the SCSD ceiling which, unfortunately, has one fault. It is on a five foot module, and it allows for only a rectilinear type of flexibility. In other words, all your rooms are on a rectilinear square basis, whereas a true integrated ceiling would allow you to move partitions to form a space of any shape. Integrated ceilings prove to be a bit more expensive than the old, normal ceilings. The integrated ceiling that you see in the SCSD program runs somewhere around $2.00 per square foot depending on the light source system that you use.

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Drawing your attention to the ceiling is just another way of underscoring the need for detailed planning of proposed new facilities. Though the ceiling and the little used space just above it may well be critical to a fully efficient building, experience has proven that its possibilities are all too often overlooked.